



● ● Edward Joannides, General Manager at Intellian Americas

Intellian is a leading global provider of stabilised satellite antenna systems. Built upon its patented RF, stabilization and tracking technologies, its products support a wide range of industries, including Commercial Maritime, Offshore Energy, Defense & Intelligence and Luxury Yachting. The comprehensive range of antenna systems includes Satellite TV, VSAT, Global Xpress and FleetBroadband solutions.

Whether delivering goods across oceans, exploring for oil & gas in remote regions, or simply enjoying the world's great cruising destinations, the need for reliable connectivity is ever-present and always increasing. Intellian was founded on the premise that making remote connectivity simple could increase profitability for enterprises and improve lives for all.

GMC Q&A

Delivering solutions to customers ● ●

Intellian is a global provider of stabilised satellite antenna systems, providing solutions to customers in the defence and intelligence, offshore energy, commercial maritime and luxury yachting markets. Its range of antenna systems includes VSAT, Global Xpress, Satellite TV and FleetBroadband solutions. Intellian's products are exported to more than 45 countries in six continents through more than 450 contracted dealers. Amy Saunders spoke with Edward Joannides, General Manager at Intellian Americas to find out more about the company's presence in the defence sector and its views on current and future trends.

GMC: Can you provide an overview of Intellian's development, from its founding to where it stands today?

Edward Joannides: Intellian was founded in 2004, and we were initially focused on the manufacture of TVRO antennas for the maritime industry. However, as the years went by, the portfolio expanded. Intellian pre-empted the mass adoption of VSAT at sea and worked hard to develop technology that could transform maritime connectivity, making it possible for vessels to be more connected than ever before.

The company has grown steadily and significantly, and our focus on innovation related to end-user experience has resulted in our position as the leading global provider of stabilised satellite antenna systems. Built upon our patented RF, stabilisation and tracking technologies, our products support a wide range of industries, including commercial maritime, offshore energy, defence and intelligence, cruise and luxury yachting. Our comprehensive range of antenna systems includes satellite TV, VSAT, Global Xpress and FleetBroadband solutions.

Our Innovation Center in Seoul, Korea, is capable of producing more stabilised antenna systems than any other facility in the world, which has enabled us to more than meet rapidly emerging demand. The facility also houses a significant portion of our R&D, testing, support and training functions, so we've got a lot of key teams situated for close interaction on a daily basis, which ultimately yields far better results. When we host training events at this facility, it's always a great pleasure to see the look on peoples' faces when they realise they are really getting access to the full factory level details.

We have built up a global support network that is trained to the same standard as our own engineers. This gives customers peace of mind that help is there whenever it is needed. We also provide extensive training for our customers so that they can get the very best out of their antenna systems, plus a three year warranty on all our products.

As a company, we are completely user-focused and we approach connectivity challenges with this in mind. We very much believe in new ideas that can help to connect and inspire people. This is where our passion as a company lies.



● ● Intellian Innovation Center

Sometimes it's the kind of high-tech innovation you often hear about, for example our multiband antennas systems, or advanced remote support and diagnostic capability.

Other times it's much less sophisticated innovation - simply the way we design our crates for quick easy installation, that we print clear labels on every cable, connector and component of the antenna, or that we maintain stock in three global logistics centres to enable rapid deployment when needed. Those things are not really all that exciting to talk about, but in many ways they have just as much of an impact on the overall customer experience, so that's all part of our focus.

GMC: What can you tell us about Intellian's key markets, and how have they changed over the years?

Edward Joannides: Intellian's key market sectors have seen a significant change over the now 13 years we have been in business. The digital transformation of vessels across the maritime industry has revolutionised the way that merchant fleet operators, the oil and gas business, recreational boat owners and the military operate. VSAT broadband drives the 'office at sea,' the 'digital ship,' the 'digital oilfield,' and even the 'digital battlespace,' for that matter.

Connectivity enables a plethora of applications that streamline daily operations and ultimately drive meaningful cost savings. It connects the offshore asset with HQ beyond just emailing reports back and forth, but rather incorporates offshore, mobile assets into the standard enterprise IT infrastructure where the real efficiencies can be generated.

That's an important point, because there can be a tendency to think of better connectivity as meaning more data going from shore to ship - higher fidelity weather data, improved navigational or route planning information. Even increased media traffic to support crew welfare, which is incredibly important, is all data coming to the ship.

One should note, however, that improved connectivity also means an increased flow of data going from ship to shore, or ship to cloud as the case may be. This is incredibly valuable to commercial maritime and will prove vital in enabling the industry to innovate its way out of what are currently challenging times from an economic perspective. It's even more valuable, even essential, to the global military community in the context of ongoing efforts to continuously improve intelligence, surveillance and reconnaissance (ISR) missions when speed and low latency are critical for 'real-time' decision making.



● ● GX100PM set

GMC: Where does Intellian see itself in the market compared with its competitors? What makes it stand apart?

Edward Joannides: For starters, we are the market share leader, so that is one way in which we stand apart. That alone is really not telling the full story, however. It's more about how we came to secure that position in such a relatively short period of time that explains the difference between Intellian and all the rest.

Just this past year, we conducted some third-party brand research in an effort to see a bit of a report card on how we are doing from the market's perspective. The results were really quite eye opening. Clearly, we are viewed as the leading innovator in the industry, and as a collection of engineers and generally very technology driven people, we are of course very proud of that fact.

What also came to the surface rather clearly, however, was that we are seen as a company in this very traditional, engineering-driven industry, with whom people simply prefer to do business. We are open, we are amenable to change, we are eager to invest alongside our valued partners in developing products and/or new capabilities that we believe will ultimately drive adoption of VSAT technology in new and exciting ways.

GMC: What solutions does Intellian provide to the defence sector, and how does its programme differ to the commercial sector?

Edward Joannides: The Defence sector has been a growing area for us. From the beginning, we did have a number of engagements with various MoDs and DoDs around the world. Of course, just like commercial ships, military ships need to keep crew happy as well, so our TV systems have found their way onto a number of 'greyish coloured' vessels around the world over the years.

As we expanded into VSAT, though, the interest has really increased in pace very quickly. In 2015, we released a product called the v100PM, which is essentially a hardened, military-grade version of our flagship product, the v100. It comes off-the-shelf certified to MIL-STD 167-A and MIL-STD 461-F. It is also capable of meeting MIL-STD 810-F upon request. The system operates in Ku-band and offers a simple and easy path for conversion to Ka-band operation once installed through a convenient upgrade kit.

The upgrade process takes as little as 10 minutes and is executed without removing the antenna from the ship, or even lifting the radome, for that matter. Everything is designed with ease-of-use in mind. The v100PM is used by a few different government customers today, most notably the US Army Watercraft Service.

Once upgraded to Ka-band operation, the v100PM becomes what we call a GX100PM. The GX100PM is the world's first and only 1m military grade terminal approved for use on the Inmarsat GX network. Since Ka-band is such a major topic in the military world these days, the system has been in testing by a number of different government agencies for months now. All of the feedback is positive, and it seems just a matter of time before the programme offices begin to float formal RFPs to get these systems aboard ships.

Beyond the standard 1m form factor in either Ku or Ka-bands, we have also developed some pilot products for the Korean Military operating in X-band. Our v60X is a 65cm X-band product capable of delivering outstanding performance in a very convenient little form factor. That pedestal is even more hardened, having already been certified to MIL-STD 901-D.

Beyond the smaller sized systems, Intellian is known in the commercial market for our focus on multiband capabilities. Our v240M is currently gaining tremendous popularity in both the oil and gas sectors, as well as the global cruise industry. Like military and defence users, both these markets require the widest set of global capabilities available in a single antenna. They want total interoperability with as many satellite constellations as possible to ensure the best available data speeds at any

location on the globe. The v240M is a 2.4m system which automatically switches between Ku and C-band with the push of a button. Switching takes about 20 seconds to acquire full modem lock in a new network. It was the first of its kind on the market and offers superior RF performance in both bands to any other competing product today.

The world's largest cruise operator has now adopted this technology as the bedrock of their communications strategy going forward, which as one can imagine will require massive amounts of throughput to keep up with passenger and operational demand. Oil and gas companies are seeing this product as a key enabler of the 'digital oilfield' going forward, so once again, Intellian seems to have identified a key market problem and provided the right solution.

Later this year, we will roll out a triband version of this system, which will include full operation in Ku, C and now Ka-band as well. The interesting thing about the Ka-band capability is that it will cover the full 2.5GHz of commercial Ka, meaning that the system will be interoperable with all Ka-band satellite services going forward. The pedestal will also support MEO satellite tracking, which is why we are now calling this new capability "K-any." We have already been approached by some of the world's largest navies to begin studying the feasibility of developing a triband system that may have a slightly different configuration, including military Ka, commercial Ka and X-band, for example.

GMC: What major trends have you observed in the defence sector in recent years, and how has Intellian addressed these?

Edward Joannides: One of the key market dynamics we see in the defence and intelligence space is that budgets are shifting around and operational requirements are constantly evolving. For the Five Eyes countries in particular, the topic of Wideband Global Satcom (WGS) is very present with a number of major ongoing studies underway to determine how best to move forward. Can commercial satellites offer a better value? Should governments continue to fund their own constellations?

These are extremely important and relevant questions, but one of the challenges they pose is that without a clear direction,

the effect on adoption of next generation solutions is rather stifling. As one might expect, geopolitical realities are not cooperating by waiting for these questions to be answered, so in many cases war fighters are being forced to do a lot more than they used to with very little bandwidth.

Taking the refugee crisis currently impacting nations in Southern Europe as an example, the Civil Defence Forces and Coast Guards operating in the Aegean and Mediterranean are now doing more active Police work than ever before. Waves of refugees must be processed, finger printed, background checked, and all of that really needs to be happening as near to real time as possible from a security standpoint. All of it is incredibly data intensive as well, so doing this all through conventional satcoms systems is really stretching not only capabilities, but also budgets in many cases.

Earlier we discussed the v100PM and GX100PM. The entire PM series is really meant to be thought of as a long-term communications platform. Not unlike Lego's building blocks, a v100PM can operate in commercial Ku-band today, leveraging some really interesting high throughput Ku-band capacity from the likes of Intelsat EPIC and others for example, and could be reconfigured for Global Xpress or even WGS functionality down the road.

Another important trend that is very evident in the defense sector is the use of commercial-off-the-shelf (COTS) products. COTS systems are able to meet the demands of strict military communications requirements on very short development cycles, enabling the military to get much-needed connectivity to theatre in a fraction of the time of proprietary networks and equipment.

The PM series, as an example, is not quite 100 percent COTS as compared to our standard commercial product line. Understandably there are more stringent testing requirements and environmental specifications. Some different materials must be used to deliver the right results and that carries some additional cost, but it is really quite minimal. In our case, nearly 90 percent of the components are the same as our commercial product line, so government customers are definitely benefiting from that volume and scale of production.



Korean Navy. Photo courtesy of Intellian

GMC: Are there any particular challenges in the defence market that Intellian or its customers must address?

Edward Joannides: In terms of challenges, the defence market is constantly looking to lower costs. Budgets are tight, and have been so for some time. So, cost is a major consideration for any MoD looking for maritime or land VSAT capability. In addition, systems must be rugged, reliable and able to deliver guaranteed high performance in the most difficult of conditions with nominal maintenance. Antenna systems must also be simple to use by staff that have minimal knowledge of satellite antenna systems.

The challenge is to achieve all of that while also providing the widest set of options. Programme offices love the idea of investing in a capability today that can adapt and evolve throughout its operational lifetime. This is rarely truer than on-board ships.

The amount of paperwork and approval involved in changing a vessel's mast configuration is astounding. The ability to keep a system installed with only a few RF components to swap in or out to go from one mode of operation to the next is highly appealing. We are squarely focused on delivering that exact capability.

GMC: In November 2016, Intellian launched a 1m military-grade maritime terminal approved by Inmarsat for Global Xpress. What can you tell us about the development of the first-ever military-grade GX maritime system, and how will it benefit defence forces?

Edward Joannides: The GX100PM is the first 1m, military grade

maritime terminal, Type Approved for use on Inmarsat's Global Xpress network. It is compatible with Inmarsat's Global Xpress 'SATCOM as a Service' capability, which allows maritime users to access seamless reliable commercial wideband connectivity delivered as managed service worldwide.

The GX100PM is based on Intellian's v100PM, a 1m Ku-band military-grade antenna currently deployed on government vessels around the world. The new GX100PM terminal delivers outstanding Ka-band performance and is ideal for the budget-conscious MoDs of today as it leverages the cost-savings and production volume of our commercial grade 1m platform. It delivers reliable, robust and resilient performance, which, as we have mentioned is absolutely key to military users. The system also meets military standards for weight, vibration and magnetic performance. The GX100PM also features a modular conversion kit, making it highly flexible over its operational lifetime.

GMC: What do you expect Intellian to achieve in 2017 and beyond?

Edward Joannides: This year, Intellian will roll out our very first land mobile terminal. This will be a quick-deploy, auto-acquire system – known as a flyaway. The system will initially come to market in a 1m form factor for operation in Ku-band. Like nearly all of our other products, it will present a clear and easy path to Ka-band operation as well. The system will meet all necessary MIL-STD requirements and will specifically target the military market.

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● ● M80 Stiletto. Photo courtesy of Intellian